Turk J Med Sci
25 (2001) 175-176

Short Report

Mustafa KÖSEM[1]
Metin KARAKÖK[2]

Hibernoma: A Case Report and Discussion of a Rare Tumor

[1]Department of Pathology Faculty of Medicine, Yüzüncü Yıl University, Van-TURKEY
[2]Department of Pathology Faculty of Medicine, Gaziantep University, Gaziantep-TURKEY

Received: October 12, 2000

Key Words: Interscapular hibernoma, brown fat

Hibernomas are benign soft tissue tumors, derived from brown fat (1). While tumors arising from white adipose tissue are among the most common soft tissue lessions, hibernomas are among the rarest, with only 120 cases reported in the world's literature so far. This tumor was first described by Merkl in 1906 as being composed of brown adipose tissue. The term hibernoma was proposed in 1914 by Gery because of its morphologic similarity to the cells of the so-called hibernating glands of animals (2). Most hibernomas occur in sites where brown fat persists beyond fetal life (usually in the interscapular region or thigh), but they also occur in sites where brown fat is usually absent (3). Hibernomas are slow-growing, painless neoplasms which do not recur. Total excision is advocated, as there is no known malignant potential (4,5). We describe a 21–year-old male with interscapular hibernoma, and emphasize the necessity of differentiation from well-differentiated liposarcoma.

Case Report

A 21-year-old man was referred to the Department of General Surgery Yüzüncü Yıl University Medical School because of an interscapular mass. The patient was healthy and completely asymptomatic. The overlying skin of the mass was freely moveable and there was no lymphadenopathy. The mass was completely excised and examined histopathologically.

Macroscopically, the fresh specimen was tan-brown, homogeneous, and encapsulated, with a buttery consistency. The mass measured 4x3x1 cm. Light microscopic examination showed tumor cells arranged in lobules separated by fine reticulin fibers. Most of the cells were round or polygonal with monovacuolated or multivacuolated lipid-containing cytoplasm. The nuclei were ovoid or spherical and central (Figure 1). Vascularity was prominent throughout, with abundant capillaries situated between lobular units. Close examination of multiple representative sections showed neither mitosis nor atypia.

Hibernomas are extremely rare benign tumors derived from brown fat (1,4). Brown adipose tissue is believed to have a role in thermoregulation and is first recognizable in human fetuses at the 21st week of

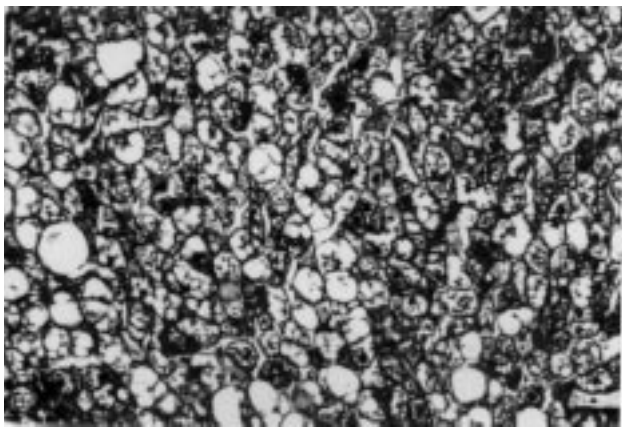

Figure 1. Hibernoma composed of granular or multivacuolated, round to ovoid cells with small and centrally placed nuclei. (H-E X 125)

gestation. In the adult, brown fat persists in the neck, axilla, mediastinum and periadrenal and perirenal areas (3). The most common site of reported hibernomas is the subcutaneous tissues of the back, especially the interscapular area. Other frequent locations include the neck, axilla, thigh, and intrathoracic area (2,3,6). They have also been reported to be located in sites including the scalp, buttock, popliteal fossa and scrotum, and intracranially, intraspinally and periureterically (1,3,4,7,8). In contrast to other types of fatty tumors, which usually occur within the 4th to the 7th decade of life, the peak incidence for hibernomas is the third decade (5,10). Review of the literature shows a slight, but not significant, predominance of females over males (5).

Clinically, the typical presentation for this tumor is progressive painless enlargement. Symptoms, when present, are usually related to the compression of adjacent structures. Localized tenderness is rare.

Among the diagnostic procedures performed, CT scan and angiography provided the most helpful information. Because hibernomas are fatty, solid, and vascular, they appear clearly on CT as contrast-enhancing densities, and in this respect, CT is superior to USG in localizing the mass. This hypervascularity also makes angiography an ideal tool for evaluation, but at the same time can mislead clinicians into suspecting a malignant process (5).

Macroscopically, the tumor is usually well defined, soft and mobile. Its color varies from tan to red brown, largely depending on the relative amount of intracellular lipid (10).

Microscopically, the tumor is characterized by large multivacuolated cells with scanty granular eosinophilic cytoplasm and eccentric nuclei, univacuolated cells, with peripheral nuclei, and smaller round cells with granular cytoplasm (5,10).

In the differential diagnosis of adult rhabdomyoma and granular cell tumors are readily distinguished by the complete absence of lipid vacuoles in the cytoplasm. But certain forms of round cell liposarcoma, composed of multivacuolar eosinophilic lipoblasts, may closely resemble the brown fat cells of a hibernoma (10).

Hibernoma is a very rare tumor, and this case exhibits its salient clinical and pathological features. Although the hypervascularity on angiography may be suggestive of malignancy and make preoperative biopsy unfeasible, hibernoma should be considered in the differential diagnosis of fatty soft tissue tumors, since the surgical management can be conservative and the postoperative prognosis is excellent.

References

1. Chitoku S, Kawai S, Watabe Y, Nishitani M, Fujimoto K, Otsuka H, Fushimi H, Kotoh K, Fuji T. Intradural spinal hibernoma: Case report. Surg Neurol 49: 509-13, 1998.
2. Ahn C, Harvey JC. Mediastinal hibernoma, a rare tumor. Ann Thorac Surg 50: 828-30, 1990.
3. Stephen AH, Sanjay RP, John WB. Hibernoma of the pericardium presenting as pericardial effusion in a child. Ped Pathol 10:575-80, 1990.
4. Fletcher CDM, Cole RS, Gower RL, Heyderman E. Hibernoma of the spermatic cord: the first reported case. Br J Urol 58 (1): 99-100, 1986.
5. Rigor VU, Goldstone SE, Jones J, Bernstein R, Gold MS, Weiner S. Hibernoma: A case report and discussion of a rare tumor. Cancer 57: 2207-11, 1986.
6. Udwadia ZF, Kumar N, Bhadura AS. Mediastinal hibernoma. Eur J Cardiothorac Surg 15 (4): 533-5, 1999.
7. Muszynski CA, Robertson DP, Goodman JC, Baskin DS. Scalp hibernoma: Case report and literature review. Surg Neurol 42: 343-5,1994.
8. Gülmez İ, Doğan A, Balkanlı S, Yılmaz U, Karacagil M, Tatlışen A. The first case of periureteric hibernoma. Scand J Urol Nephrol 31: 203-4, 1996.
9. Sayrak H, Gönül E, Sayrak F. Hibernoma in the scrotum. Br J Urol 80: 679-80, 1997.
10. Enzinger FM, Weiss SW. Soft tissue tumors. Mosby-Year Book, Inc., St. Louis 1995, pp: 420-3.